



DOCKET NO.: 203285US90

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

Naoto IKEGAWA et al

: GROUP ART UNIT: 1773

SERIAL NO: 09/871,896

: EXAMINER: Nikolas UHLIR

FILED: JUNE 4, 2001

FOR: LAMINATE

DECLARATION UNDER 37 C.F.R. §1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes IKEGAWA, Naoto who deposes and states:

1. That I am a graduate of Kyoto Institute of Tech. and received a Doctor degree in the year 1996.
2. That I have been employed by Matsushita Electric Works for 13 years as a regular employee in the field of molding technology.
3. That the following experiments were carried out by me or under my direct supervision and control.
 - a) An aromatic polyamide (poly(phthalamide)) base resin was prepared by adding a filler material of boric aluminum of an amount of 70% (by mass) thereto.
 - b) A liquid crystal polyester base resin was prepared by adding a filler of fibrous potassium titanate at an amount of 50% (by mass) thereto.
 - c) A polyether ether ketone was prepared by adding a filler of boric aluminum at an amount of 20% (by mass) thereto.

A sample of each base resin produced above was treated by nitrogen plasma, oxygen plasma and argon plasma and a copper metal layer was deposited on the base resins using the procedures set forth in the present application at the section titled "Examples" on pages 29-30.

The adhesion between the base resin and the deposited copper was then measured and the results of the experiments are shown in Table 1.

Table 1

Base resin	Filler		Nitrogen plasma	Oxygen plasma	Argon plasma
	Material	Configuration			
Arpmaric polyamide (poly(phthalamide))	boric aluminum (diameter 0.5-1.0 μ m, length 10-30 μ m)	70%	1.1N/mm	0.77N/mm	1.04N/mm
Liquid crystal polyester	fibrous potassium titanate (diameter 0.3-0.6 μ m, length 10-20 μ m)	50%	0.55N/mm	0.25N/mm	0.37N/mm
Polyether ether ketone	boric aluminum (diameter 0.5-1.0 μ m, length 10-30 μ m)	20%	0.56N/mm		

4. The results of the experiments set forth in Table 1 demonstrate for each different type of base resin containing a different amount of filler material in a different amount within the range of the present claims a higher adhesion for deposited metal to base resin treated by nitrogen plasma over deposited metal to a base resin treated by oxygen plasma or argon plasma from a range of approximately 6% greater adhesion up to 220% greater adhesion. Therefore, it is clear that nitrogen plasma treatment of a base resin containing filler material

according to Claim 1 produces superior adhesion between the base resin and deposited metal, as compared to adhesion between a base resin with filler material treated by oxygen plasma or argon plasma.

5. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing therefrom.

6. Further deponent saith not.

N. Ikegawa
Signature I K E G A W A, Naoto

Oct. 27, 2004
Date



DOCKET NO.: 208285US90

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

Naoto Ikegawa et al

SERIAL NO: 09/871,896

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: GROUP ART UNIT: 1773

: EXAMINER: Nikolai UHLIR

DECLARATION UNDER 37 C.F.R. 61.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes NAKATA, Kimiaki who deposes and states:

1. That I am a graduate of Yamaguchi and received a Master degree in
University
the year 1986.
2. That I have been employed by Matsushita Electric
Works for 18 years as a regular employee
in the field of molding technology.
3. That the following experiments were carried out by me or under my direct
supervision and control.
 - a) An aromatic polyamide (poly(phthalamide)) base resin was prepared by adding a
filler material of boric aluminum of an amount of 70% (by mass) thereto.
 - b) A liquid crystal polyester base resin was prepared by adding a filler of fibrous
potassium titanate at an amount of 50% (by mass) thereto.
 - c) A polyether ether ketone was prepared by adding a filler of boric aluminum at an
amount of 20% (by mass) thereto.

A sample of each base resin produced above was treated by nitrogen plasma, oxygen plasma and argon plasma and a copper metal layer was deposited on the base resins using the procedures set forth in the present application at the section titled "Examples" on pages 29-30.

The adhesion between the base resin and the deposited copper was then measured and the results of the experiments are shown in Table 1.

Table 1

Base resin	Filler		Nitrogen plasma	Oxygen plasma	Argon plasma
	Material	Configuration			
Aromatic polyamide (poly(phthalamide))	boric aluminum (diameter 0.5-1.0µm, length 10-30µm)	70%	1.1N/mm	0.77N/mm	1.04N/mm
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4. The results of the experiments set forth in Table 1 demonstrate for each different type of base resin containing a different amount of filler material in a different amount within the range of the present claims a higher adhesion for deposited metal to base resin treated by nitrogen plasma over deposited metal to a base resin treated by oxygen plasma or argon plasma from a range of approximately 6% greater adhesion up to 220% greater adhesion. Therefore, it is clear that nitrogen plasma treatment of a base resin containing filler material

according to Claim 1 produces superior adhesion between the base resin and deposited metal, as compared to adhesion between a base resin with filler material treated by oxygen plasma or argon plasma.

5. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing therefrom.

6. Further deponent saith not.

K. Nakata
Signature NAKATA, Kimiaki

OCT. 27. 2004
Date



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FOR: LAMINATE

DECLARATION UNDER 37 C.F.R. 61.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes KONDO, Naoyuki who deposes and states:

1. That I am a graduate of Osaka Prefecture University and received a Master degree in the year 1994.
2. That I have been employed by Matsushita Electric Works for 10 years as a regular employee in the field of molding technology.

3. That the following experiments were carried out by me or under my direct supervision and control.

a) An aromatic polyamide (poly(phthalamide)) base resin was prepared by adding a filler material of boric aluminum of an amount of 70% (by mass) thereto.

b) A liquid crystal polyester base resin was prepared by adding a filler of fibrous potassium titanate at an amount of 50% (by mass) thereto.

c) A polyether ether ketone was prepared by adding a filler of boric aluminum at an amount of 20% (by mass) thereto.

A sample of each base resin produced above was treated by nitrogen plasma, oxygen plasma and argon plasma and a copper metal layer was deposited on the base resins using the procedures set forth in the present application at the section titled "Examples" on pages 29-30.

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Polyether ether ketone	boric aluminum (diameter 0.5-1.0 μ m, length 10-30 μ m)	20%	0.56N/mm		

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according to Claim 1 produces superior adhesion between the base resin and deposited metal, as compared to adhesion between a base resin with filler material treated by oxygen plasma or argon plasma.

5. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing therefrom.

6. Further deponent saith not.

Naoyuki Kondo
Signature KONDO, Naoyuki

Oct. 27, 2004
Date

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